



US005091258A

United States Patent [19][11] **Patent Number:** **5,091,258****Moran**[45] **Date of Patent:** **Feb. 25, 1992**[54] **LAMINATE FOR A SAFETY GLAZING**

61-52093 11/1986 Japan .

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J. Farrington[21] **Appl. No.:** **569,332**[22] **Filed:** **Aug. 20, 1990**[51] **Int. Cl.⁵** **B32B 17/10**[52] **U.S. Cl.** **428/437; 428/141;**
428/458; 428/480; 428/524[58] **Field of Search** 428/141, 437, 458, 480,
428/524[56] **References Cited****U.S. PATENT DOCUMENTS**

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[57] **ABSTRACT**

A laminate which is substantially free of distortion when used in a safety glazing comprising a transparent, thermoplastic substrate layer, optionally surface treated or coated to improve adhesion, bearing one or more functional performance layers, such as an infra-red radiation reflecting stack, and at least one layer of plasticized polyvinyl butyral bonded on one side to a functional performance layer or the substrate layer having a roughened deairing surface on its other side characterized by a roughness value, Rz, of at least 10 micrometers, such plasticized polyvinyl butyral layer, before bonding to the substrate layer or functional performance layer, possessing low surface waviness on each side characterized by a wave index value, WI, of less than 15,000 square micrometers.

17 Claims, 5 Drawing Sheets